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ABSTRACT

This booklet presents a compilation of ideas and illustrations intended to solve many accessibility problems of physically handicapped persons using older buildings and facilities which were built before legislation and regulations mandating accessibility for disabled persons were passed. The solutions pictured in the booklet are intended to meet the spirit of these laws and regulations by removing structural restraints and dealing with space limitations which affect the mobility of impaired individuals. Problem areas addressed include: accessible parking; accessible curbs; walkways and ramps; handrails; exterior approach; entrances; stairs; elevators; rest rooms; assembly areas; pay telephones; water fountains; interior spaces; and controls (such as light switches). (CB)

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BOOK OF RENOVATIONS

A compilation of drawings depicting the most common problems and solutions to renovating existing buildings and facilities to make them accessible to and usable by people with physical disabilities

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1985
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BOOK OF RENOVATIONS

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Recent legislation and 504 regulations have mandated that existing buildings and facilities become accessible to and usable by people with disabilities. Since building codes and standards have typically focused on new construction, many older buildings still remain inaccessible. Modifications cost more than new construction. Structural restraints, space limitations, and the fact that often something has to be removed and replaced in a different location make renovations costly and difficult.

This booklet is designed to help solve common renovation problems found in existing facilities. Problems are divided into topic areas, such as stairs, narrow doorways, rest rooms, and illustrations of innaccessible features are often included. One or more solutions to each problem are offered, often using illustrations. All solutions meet the spirit of the law by making each problem element usable by a person with a disability. Further adaptations or modifications are encouraged, as long as they conform to standard measurements and the principle of usability.

While no specific standard, code, guideline, or legislation was used in this booklet, all measurements conform to the American National Standards Institute (A 117.1-1980) specifications. Where nonconforming measurements were used, the intended result was to adhere to the usability principle.

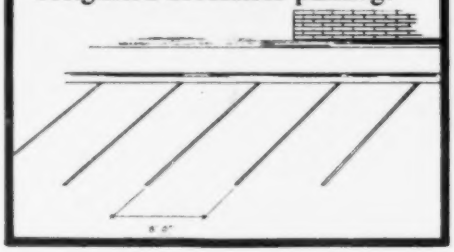
The Book of Renovations is not meant to be used as a legal mandate or code. Rather, it is a compilation of ideas and illustrations that, when applied, will solve many accessibility problems in older buildings and facilities.

Note

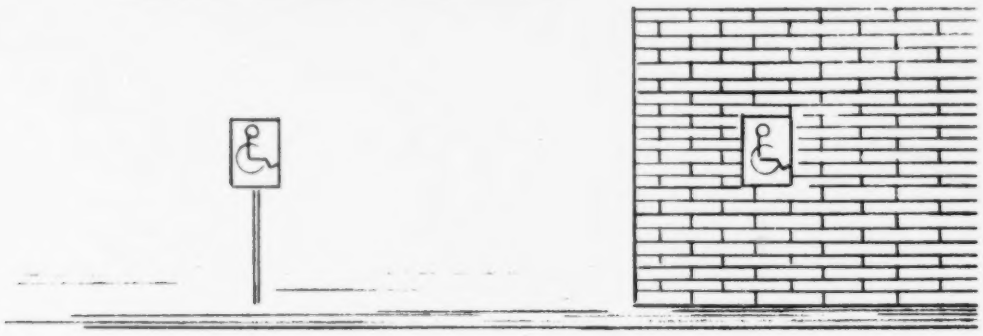
The drawings in this book are not drawn to scale. They are ideas taken from the public domain. The measurements are technically correct per American National Standards Institute (ANSI) specifications. This book is not copyrighted. If you make photocopies or reproduce any part of the book, however, we ask that you credit the source.

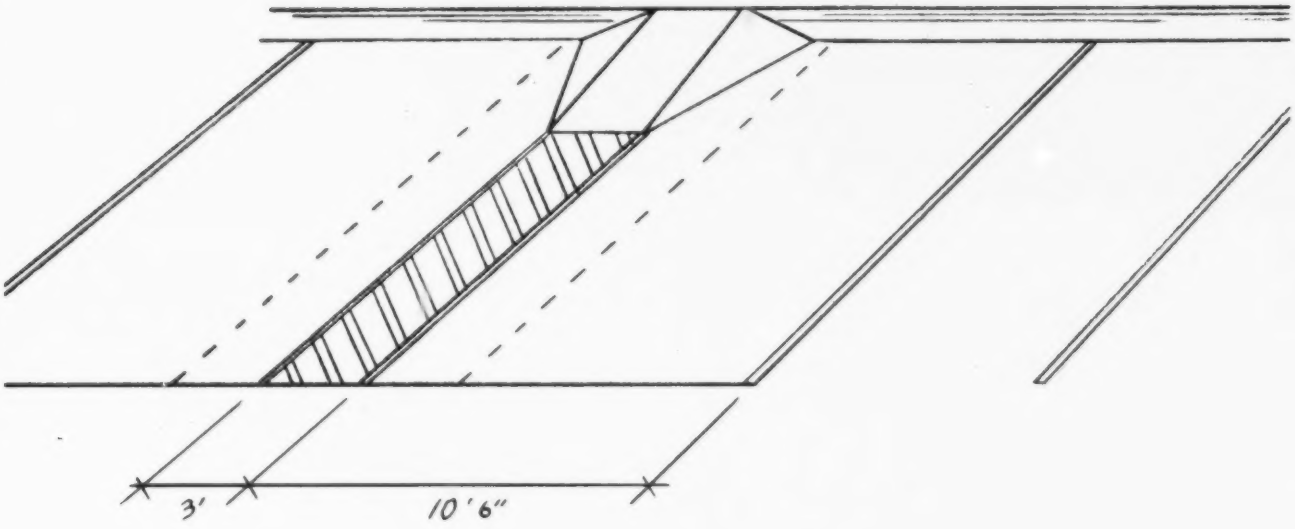
Accessible Parking I

Problem:
Parking spaces too narrow; no designated accessible parking.



Solution:
Provide 12-ft wide parking spaces by converting 3 regular spaces to 2 accessible spaces.





Comments:

1. Most municipal codes require that 1 out of every 25 spaces (or a minimum of 1 space if less than 25 spaces) be accessible in public parking lots.

2. Accessible spaces should be 12 ft wide or at least 8 ft wide with a 4-ft aisle that may be shared by two adjacent spaces.

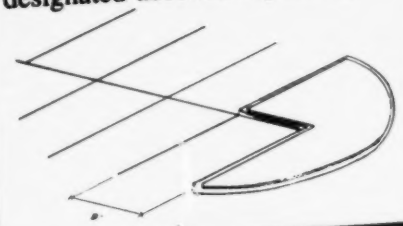
3. Accessible spaces should be located as close as possible to the accessible entrance with provisions for an accessible route of travel to the entrance. Parking surface and accessible route should be level, hard, and smooth.

4. Each accessible space should be clearly marked by a 12 in x 18 in upright sign. Sign should include international symbol of access, white on blue background, and the words, "Handicapped Parking." Suggested additional wording: "State Permit Required." Preferred sign height is 4 ft; sign may be placed on pole or wall.

5. Curb cut or ramp should have slope of no more than 1 ft in 12 ft.

Accessible Parking II

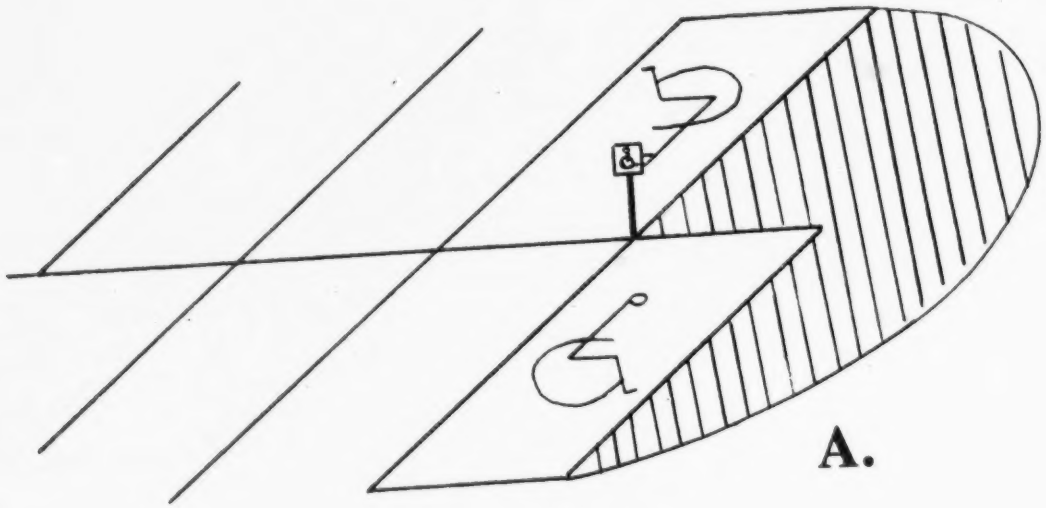
Problem:
Parking lot with concrete or grassy island at end of row; no designated accessible parking.



Solution:
Replace island with flush, level, hard surface and designate last two spaces as accessible.

A. Accessible spaces need only be 8 ft wide, if adjacent to modified island.

B. Island may be eliminated altogether and two 12-ft spaces installed.

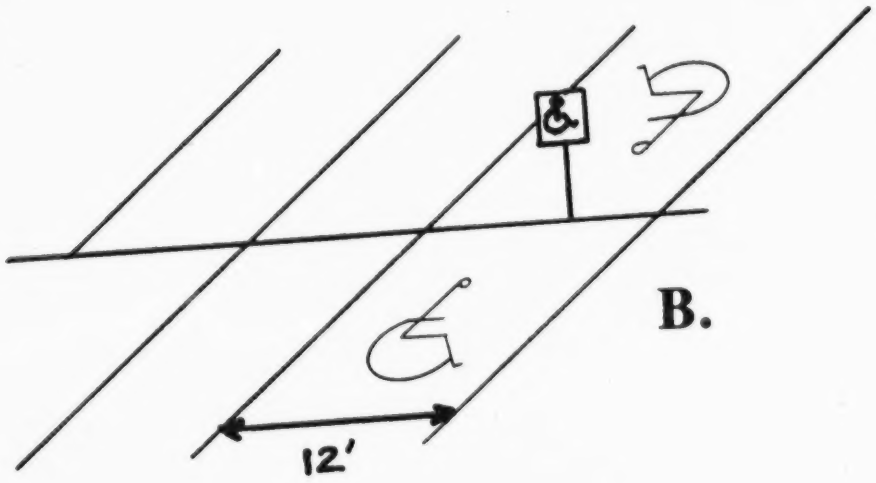


A.

Comments:

1. Accessible spaces should be clearly marked by an upright sign.

2. Where possible, accessible parking spaces should be distributed throughout parking lot to provide shortest route of travel to all major entrances.

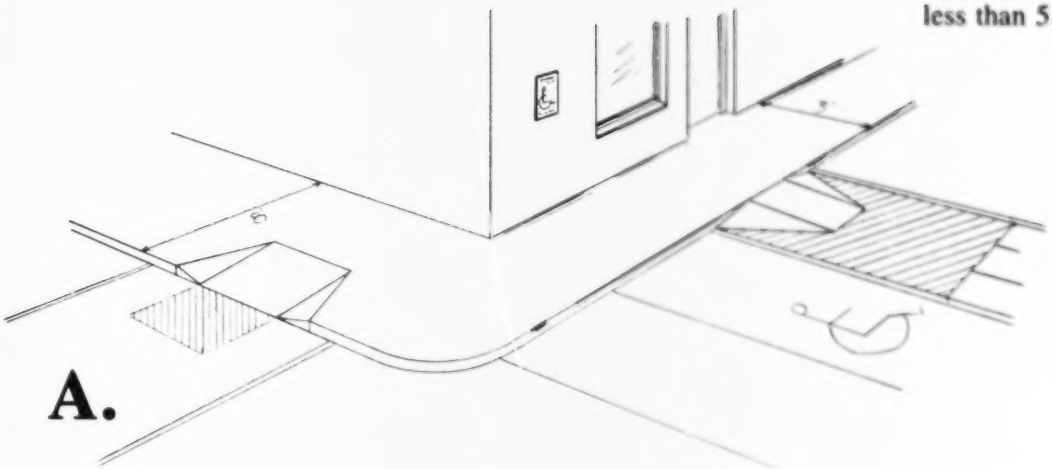


B.

Problem:
Sidewalks with inaccessible curbs.

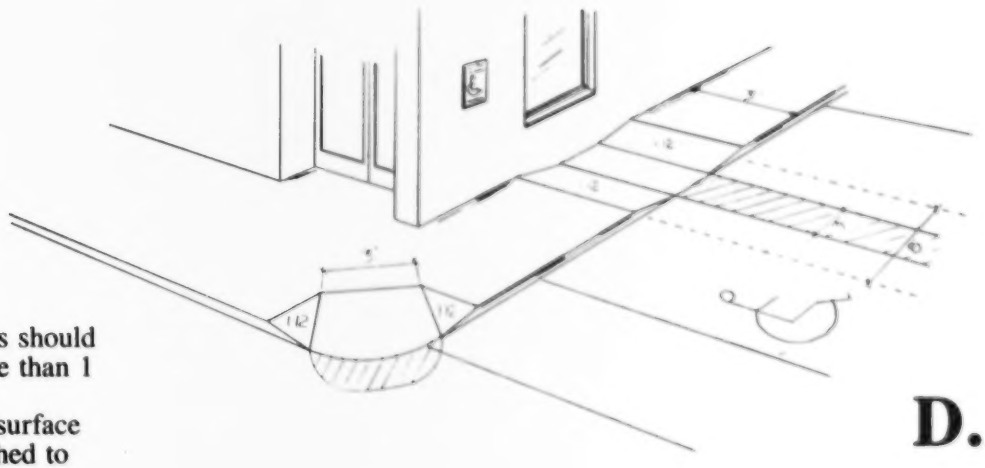
Accessible Curbs

Solution:
Install curb cut or curb ramp.
A. Curb cut where sidewalk is 5 ft wide or greater.
B. Curb ramp built up to sidewalk is a less expensive alternative. Requires 5 ft x 5 ft level area at each end of ramp.
C. Curb ramp on corner radius provides access from both directions.
D. Curb cut recessed into sidewalk where sidewalk is less than 5 ft wide.



A.

B.



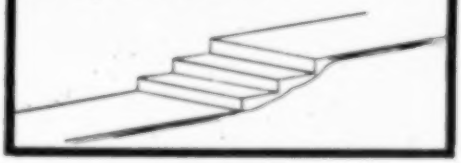
C.

D.

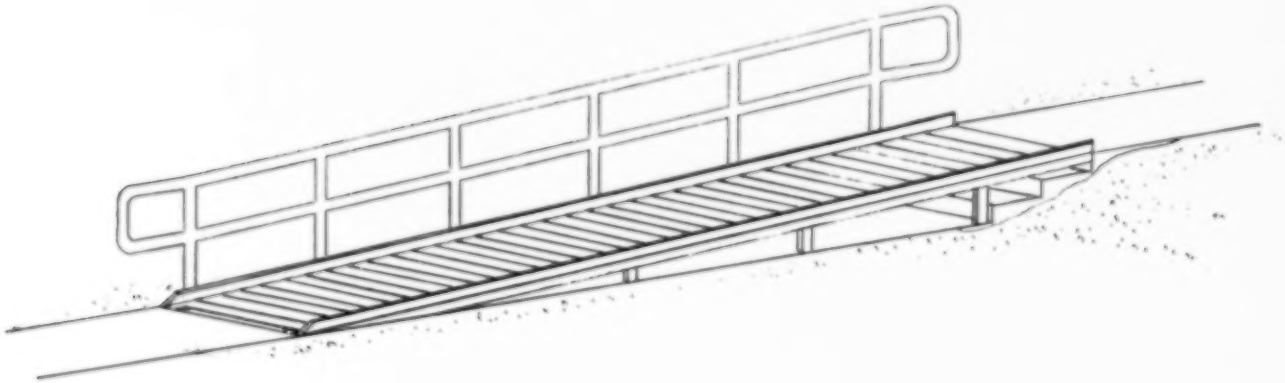
Comments:
1. Curb ramps or cuts should have slope of no more than 1 ft in 12 ft.
2. Curb ramp or cut surface should be rough-finished to improve traction and as a tactile warning to blind persons.
3. Curb ramps or cuts should not open into traffic; a 5 ft x 5 ft level and safe area should be available at end of ramp or cut.

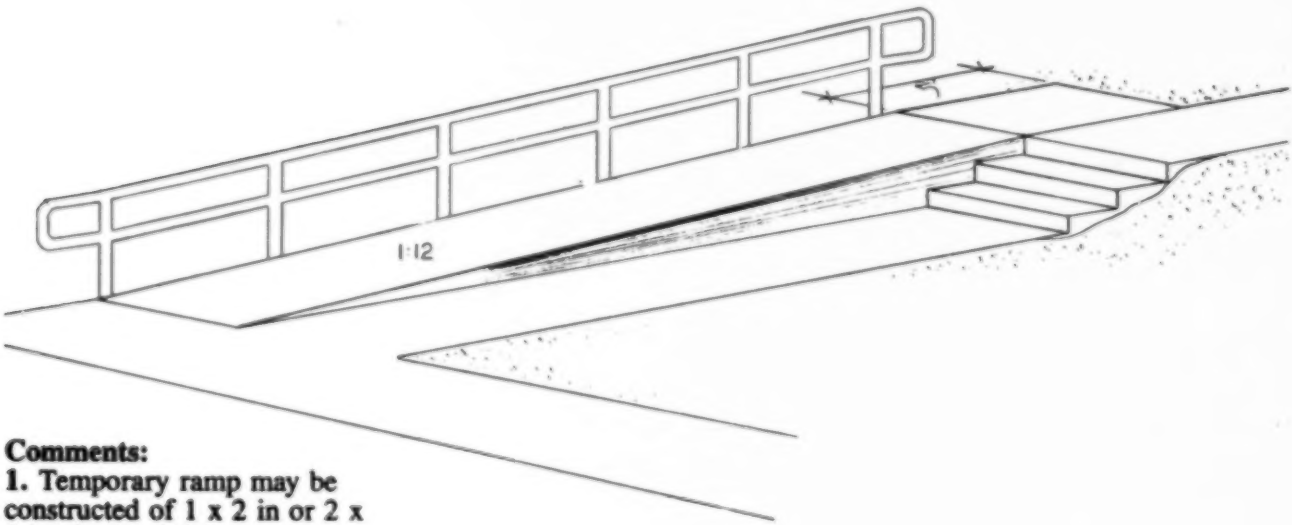
Walkways & Ramps

Problem:
Steps at building entrance or along route of travel.



Solution:
Install ramp(s).
A. Temporary ramp installed over steps.
B. Permanent ramp installed alongside steps and sidewalk.

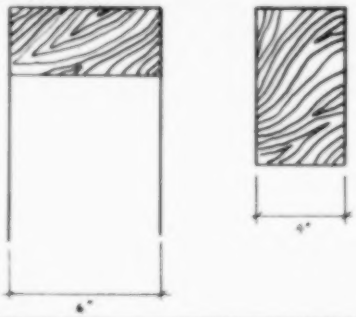




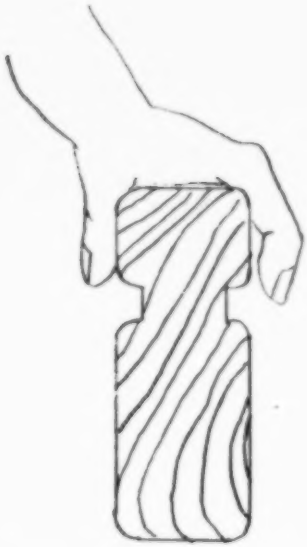
Comments:
1. Temporary ramp may be constructed of 1 x 2 in or 2 x 4 in planks, 3/4 in marine plywood, or metal plates.
2. Handrails are required, if ramp rises more than 6 in.
3. Ramp surfaces should be rough-finished to improve traction.
4. Platforms at top and bottom of permanent ramp should have area of at least 5 ft x 5 ft.

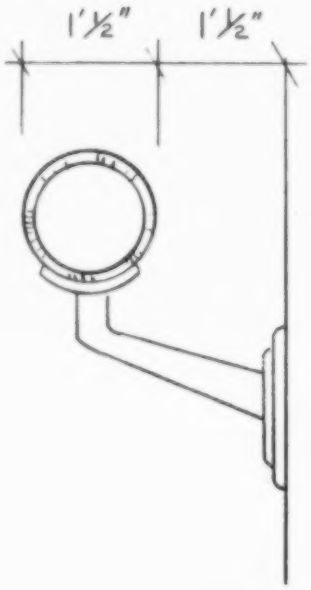
Handrails

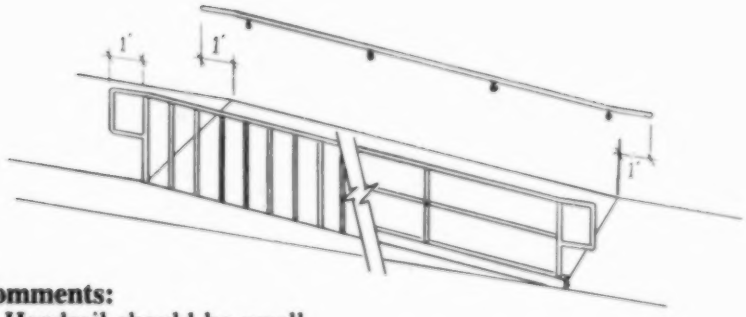
Problem:
No handrail or inappropriate handrail.

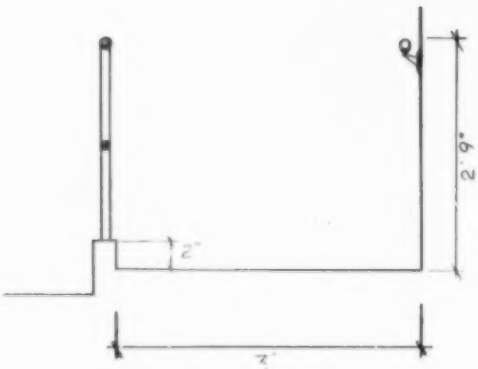


Solution:
Add approved handrail.





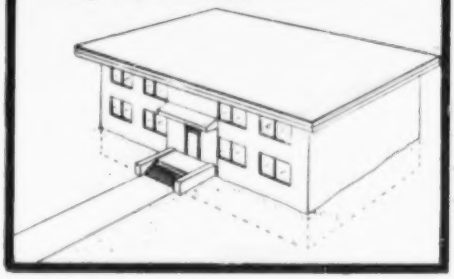




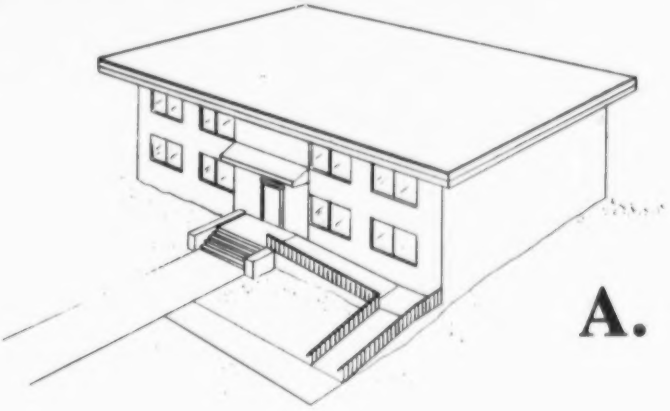
Comments:
1. Handrail should be small enough in diameter, or notched, to provide secure grip.
2. Rounded handrails are easier to grasp.
3. Handrail height should be 32 in.
4. Intermediate bars/curbs along sides.

Exterior Approach

Problem:
Steps to building entrance.



Solution:
A. Sidewalk and ramp at front entrance.
B. Ramp over portions of steps.
C. Ramp around building to accessible parking.
D. Ramp around building to secondary entrance.
E. Ramp around building to secondary entrance below first-floor level.
F. Bridge replacing steps at main entrance.
G. Earth berm and/or landscaping to bring ground level up to entrance level.



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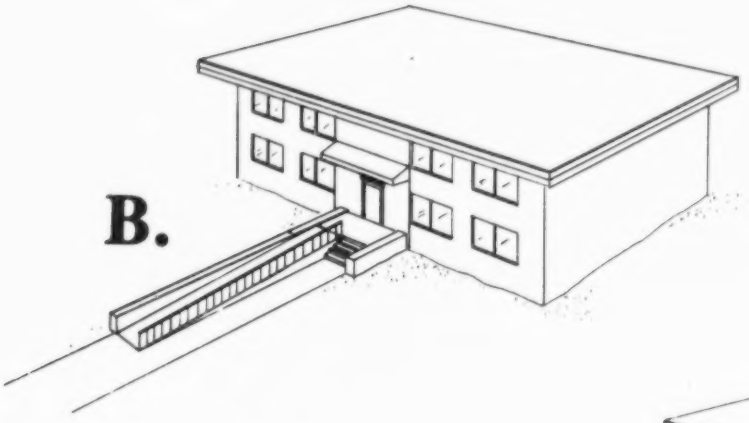

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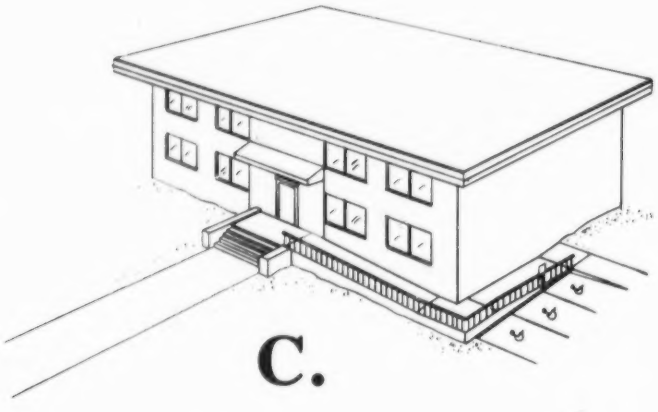

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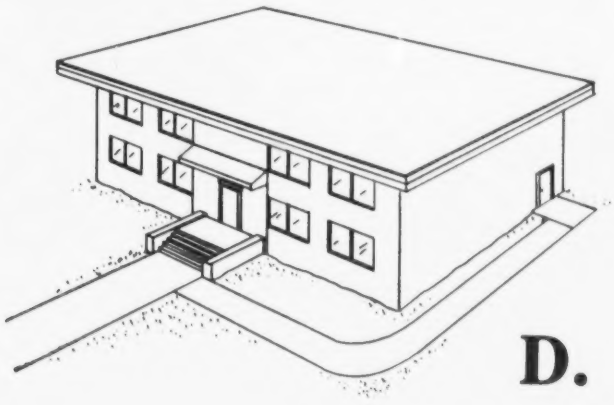

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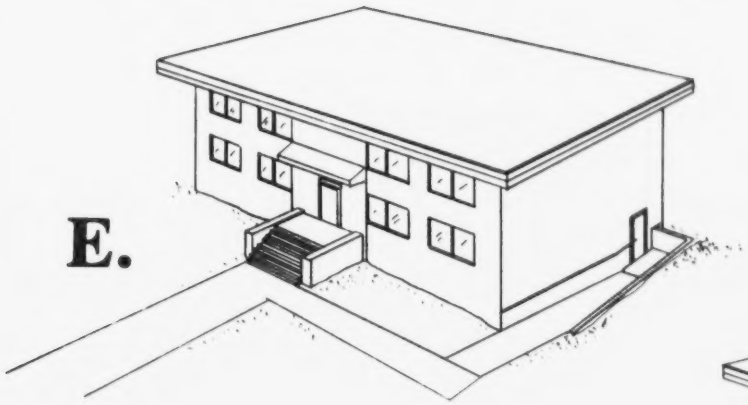

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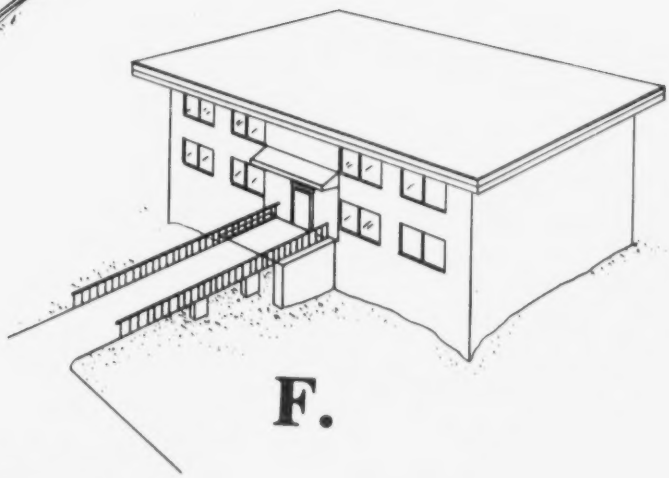

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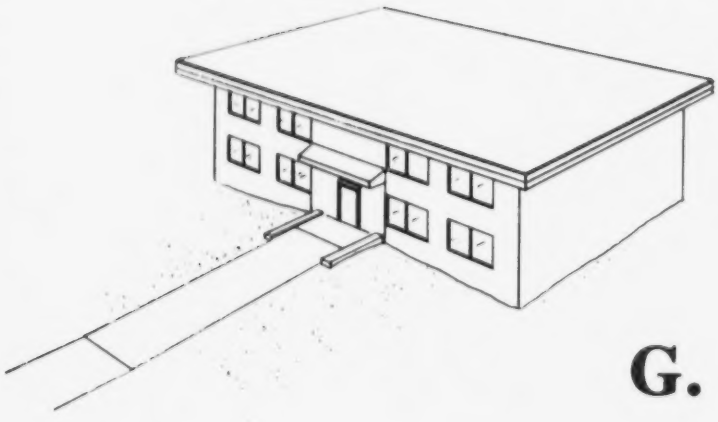
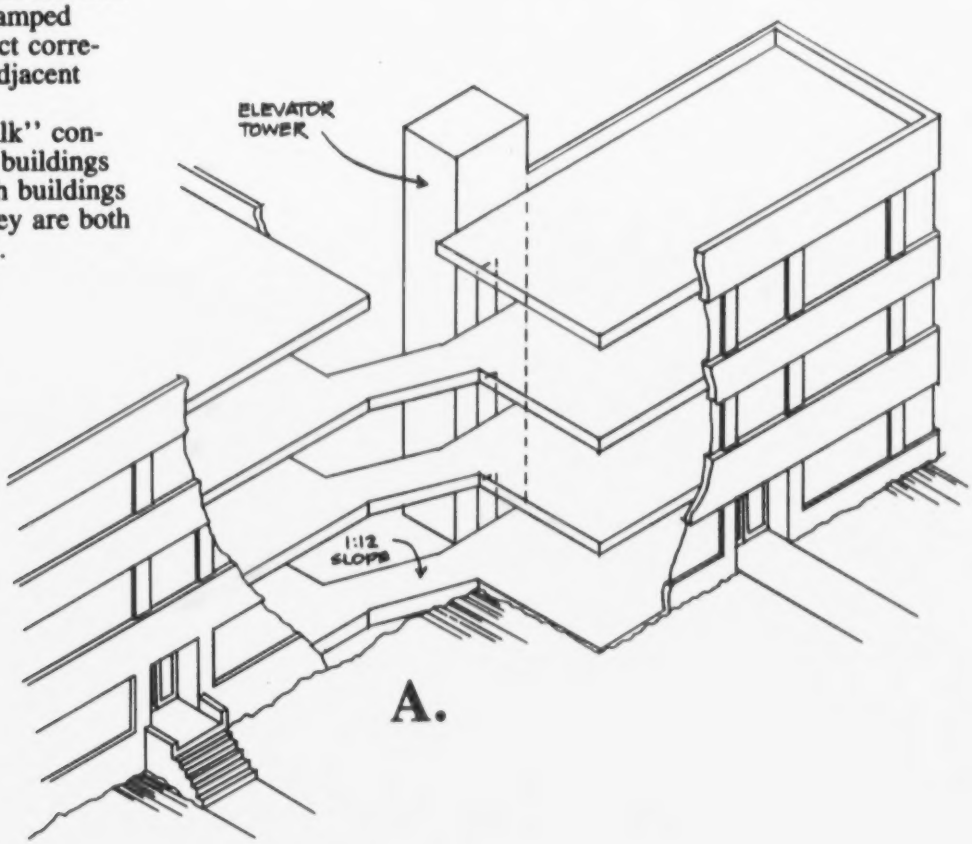


G.

Entrance Access

Problem:
No ground-level entrance or access to upper floors.

Solution:
A. Add outside elevator tower to building without an elevator that has a level or ramped entrance, and connect corresponding floors in adjacent building(s).
B. A single "skywalk" connector between two buildings is acceptable, if both buildings have elevators so they are both internally accessible.



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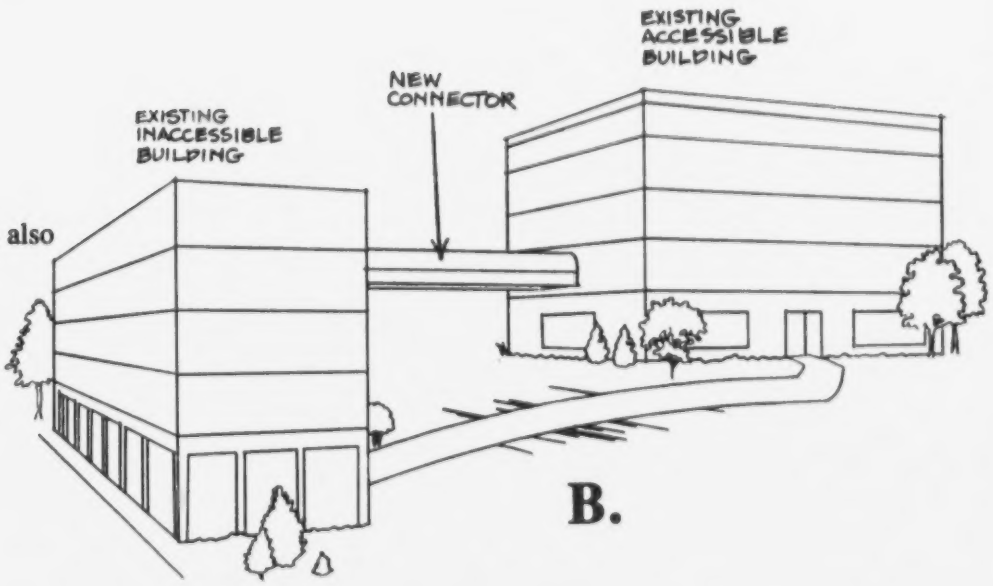
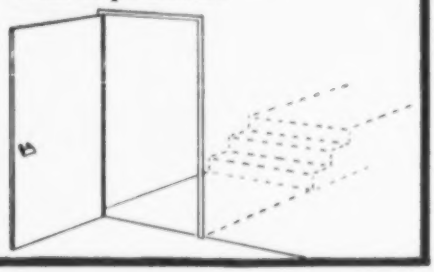


B.

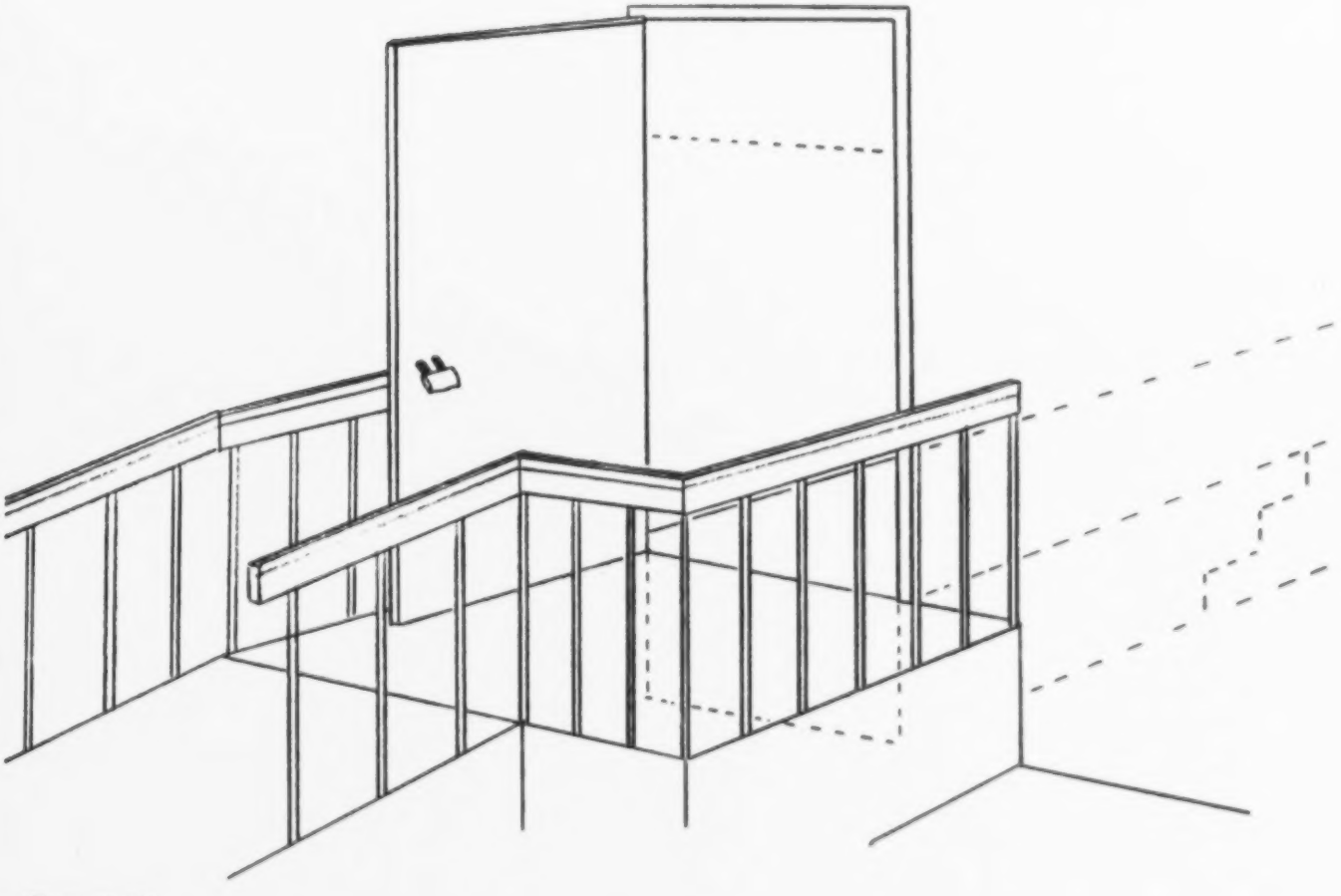
Comment:
Underground tunnels can also be used.

Entrance Renovations I

Problem:
Entrance at outside grade level with steps inside.



Solution:
Raise doorway to level of inside floor. Build platform and ramp outside and bridge over steps inside.

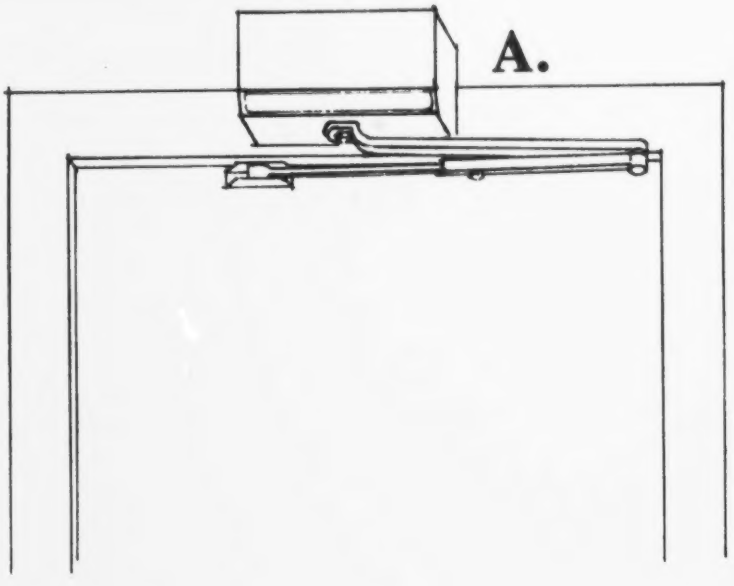


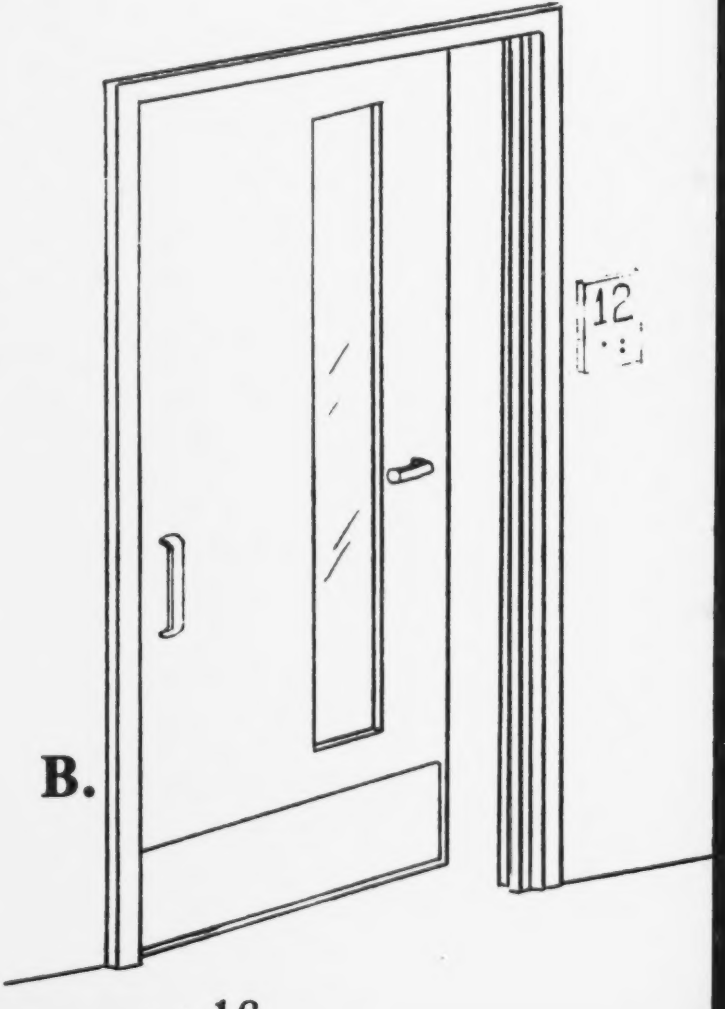
Comment:
1. Headroom must be sufficient to allow raising doorway.

Entrance Renovations II

Problem:
Heavy or hard-to-close door.

Solution:
A. Install automatic door closer.
B. Install pull handle on hinge side of door.
C. Install electric door opener/ closer.
D. Install call button for assistance.
E. Install electric door opener activated by floor pressure pad.

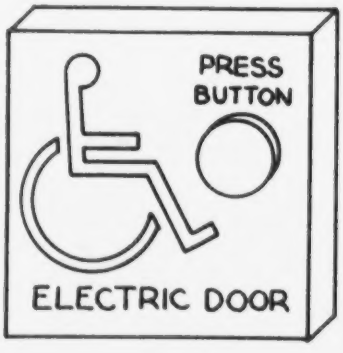




Comments:
1. Kickplate should be mounted on door to prevent damage from wheelchair.
2. Signage in tactile letters and/or Braille should be located 5 ft above floor on latch side of door.
3. Vertical window offers view of oncoming traffic.
4. Vertical pull handle, located 3 ft above floor on hinge side of door, allows seated person to close door.

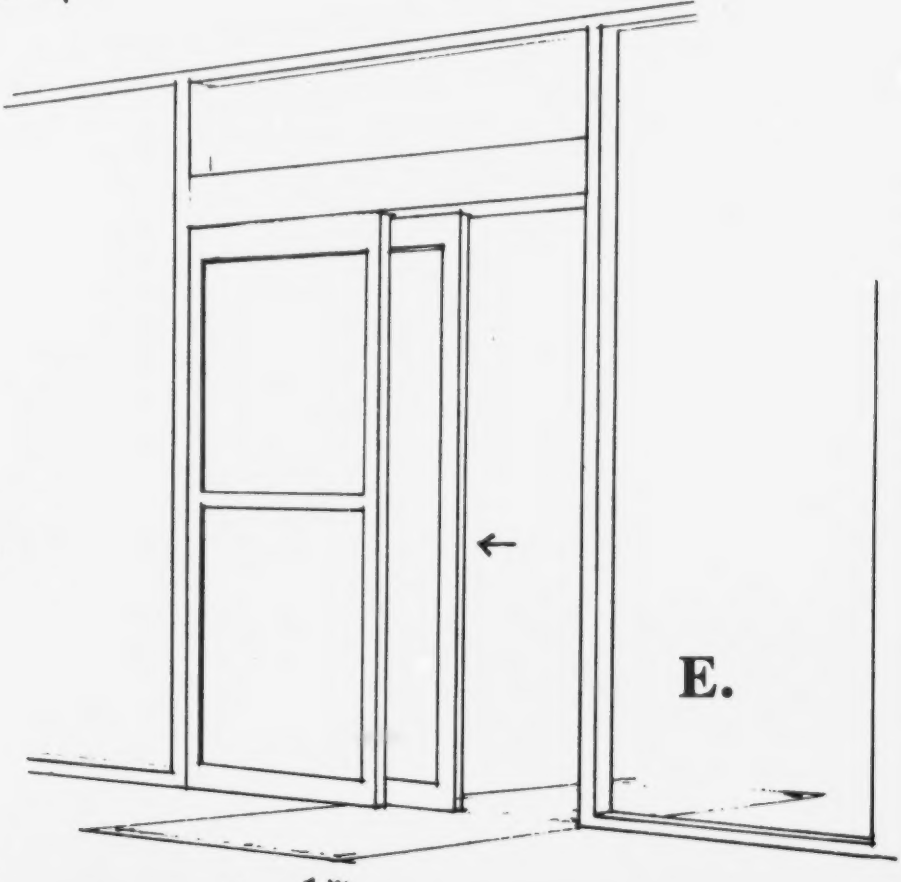
3'
3'4"
5'
5'

C.


PRESS
BUTTON
ELECTRIC DOOR

PRESS
BUTTON
FOR ASSISTANCE

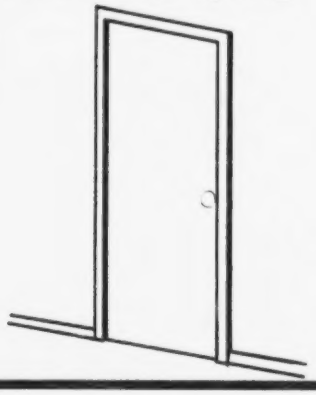
D.



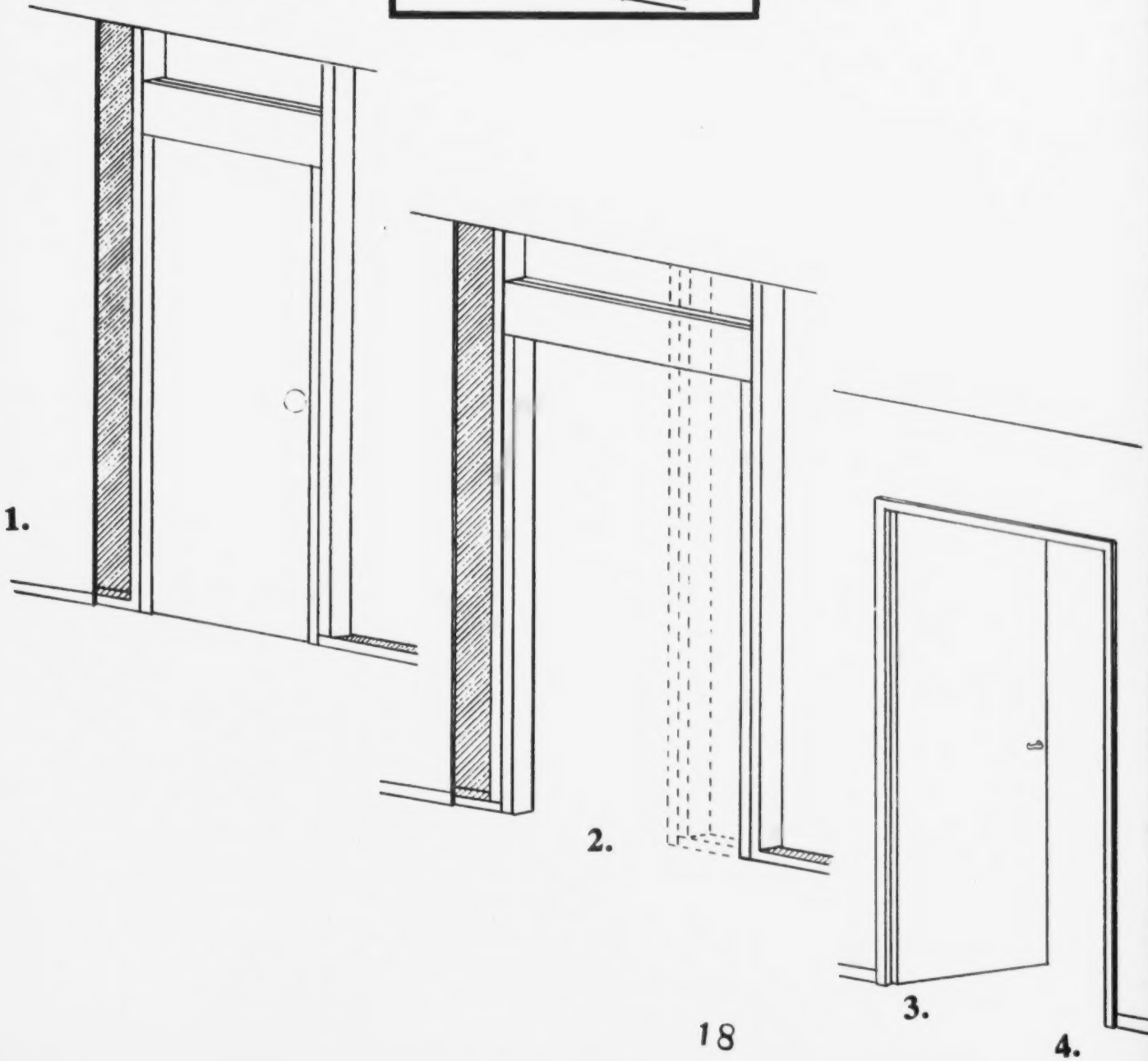
E.

Entrance Renovations III

Problem:
Doorway too narrow—less than 28 in clear opening.

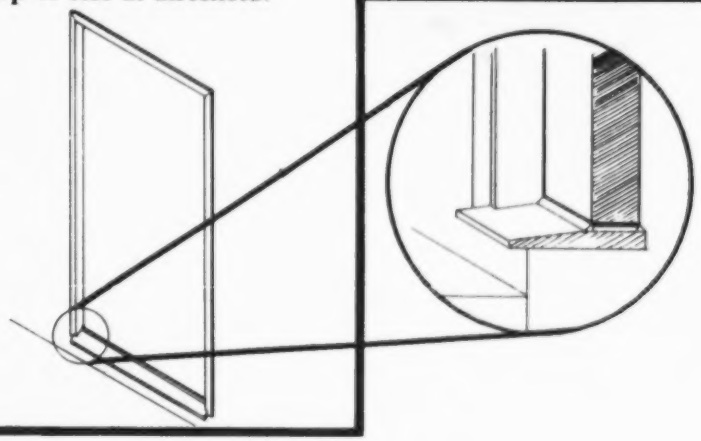


Solution:
Widen doorway and hang new door.
1) Cut away existing wall covering to expose doorway.
2) Remove and replace studs and header to accommodate wider doorway (36 in preferred).
3) Install new doorway and hang new door.
4) Refinish wall covering.

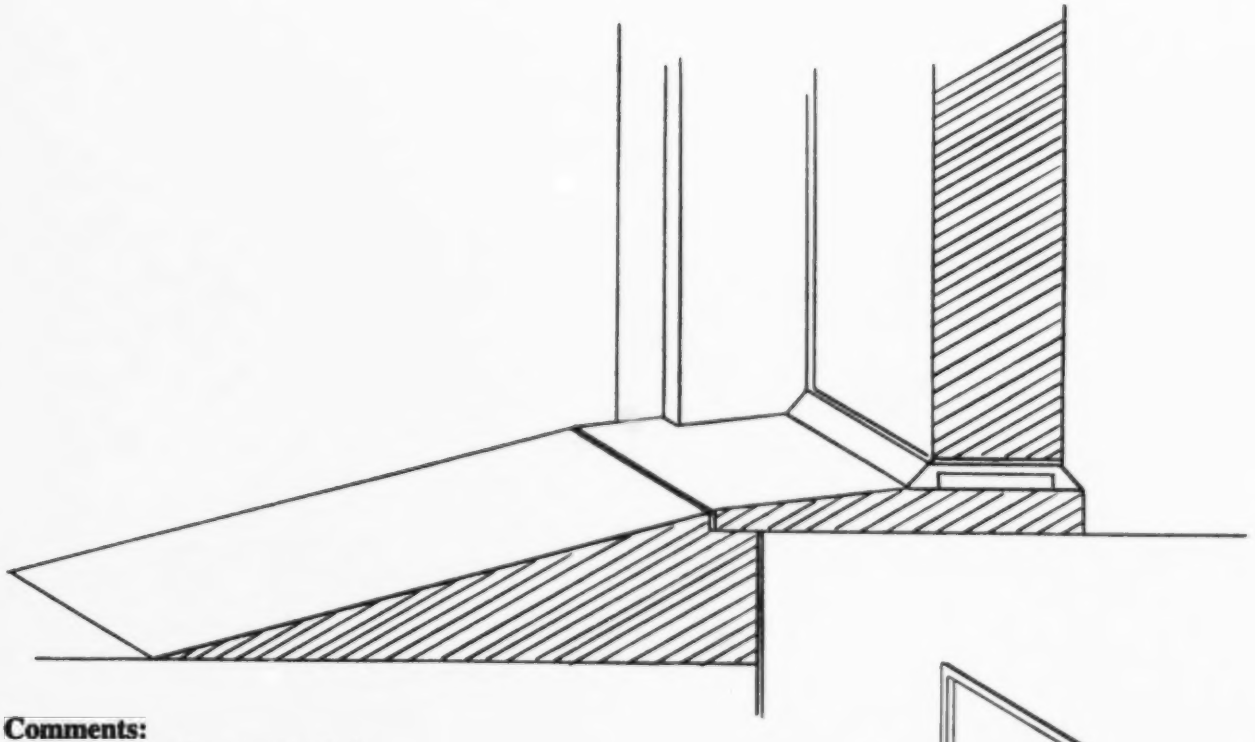


Entrance Renovations IV

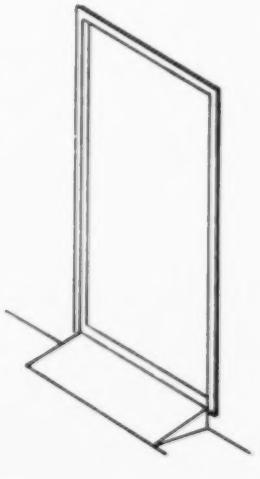
Problem:
Step or rise at threshold.



Solution:
Install wedge or "mini-ramp."

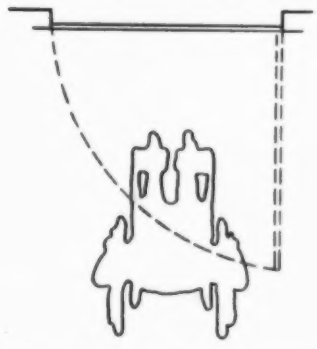


Comments:
1. Wedge may be constructed from complementary material such as stone, tile, or hardwood, or may be constructed from unfinished lumber and covered with existing floor covering.
2. If threshold is no higher than 3 in, wedge gradient may be less than 1:12 but not greater than 1:8.

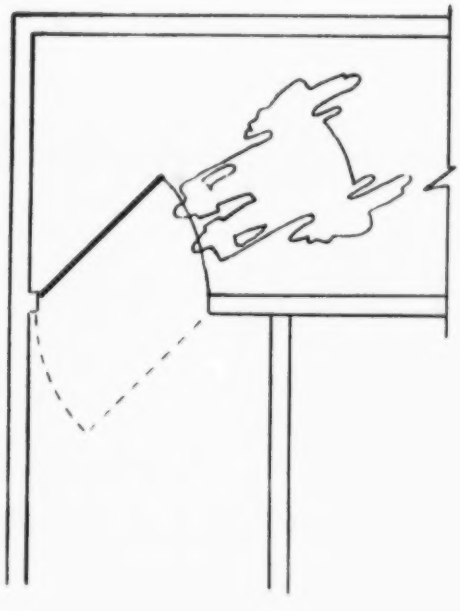


Entrance Renovations V

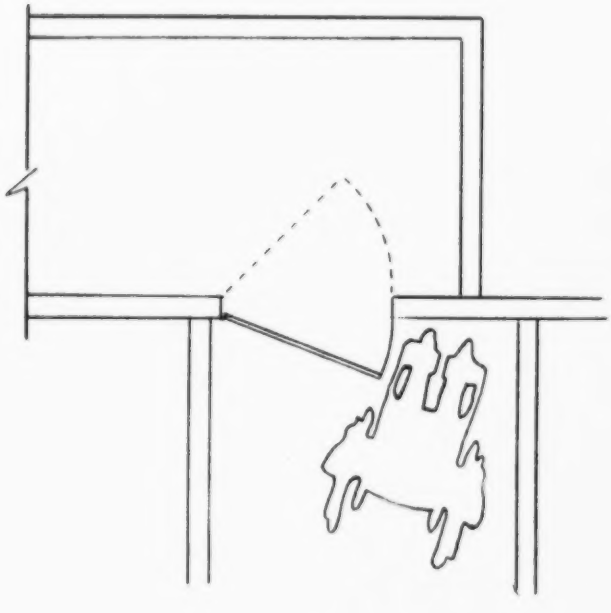
Problem:
Door swings wrong way.



Solution:
Rehang door to swing in opposite direction.



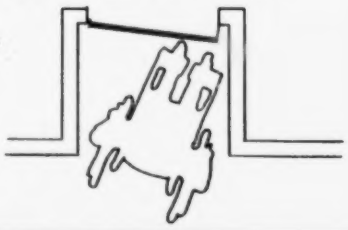
A.



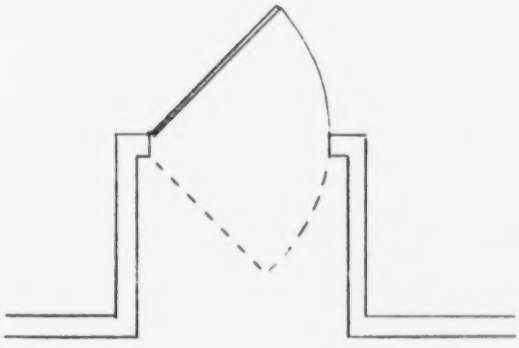
B.

Entrance Renovations VI

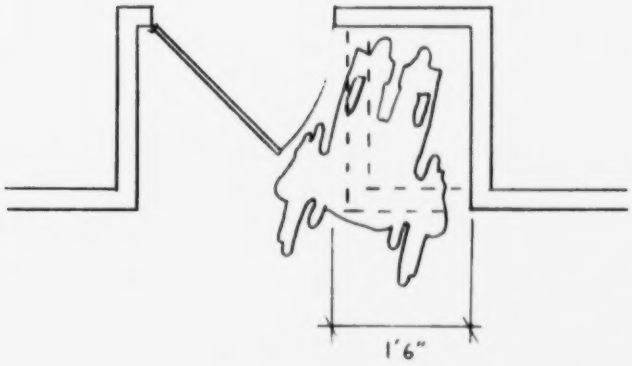
Problem:
Door in narrow alcove.



Solution:
A. Rehang door to swing in opposite direction.
B. Widen alcove.



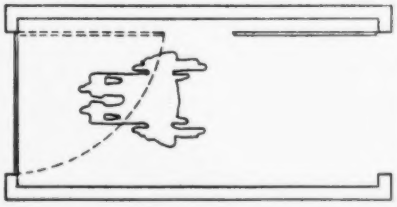
A.



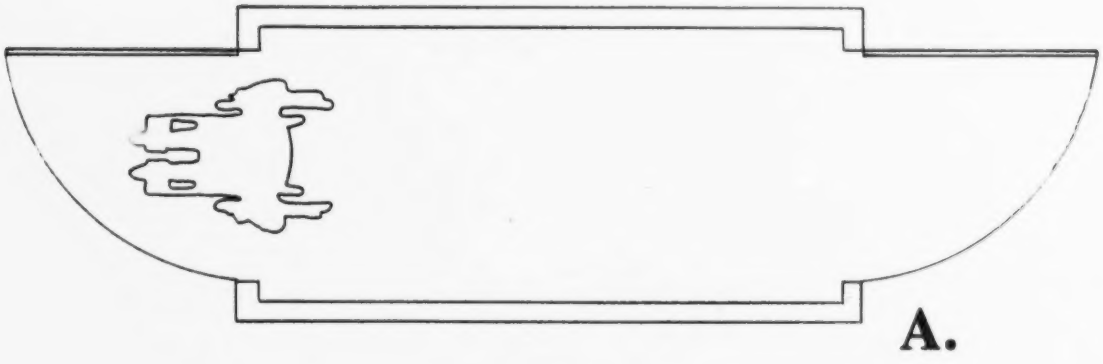
B.

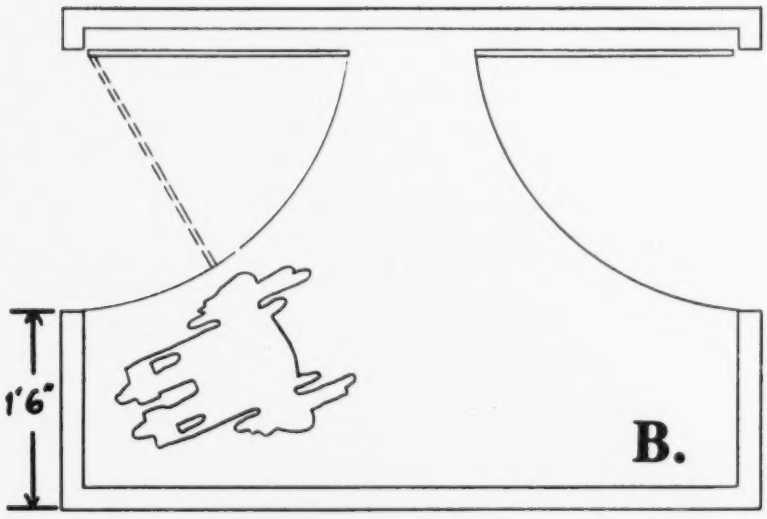
Entrance Renovations VII

Problem:
Area between doors in series is too small.



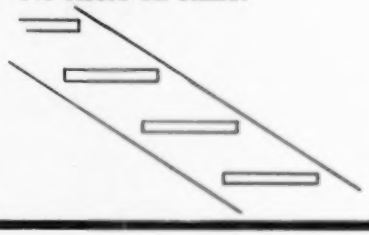
Solution:
A. Rehang doors so that they swing out in opposite directions.
B. Widen vestibule.



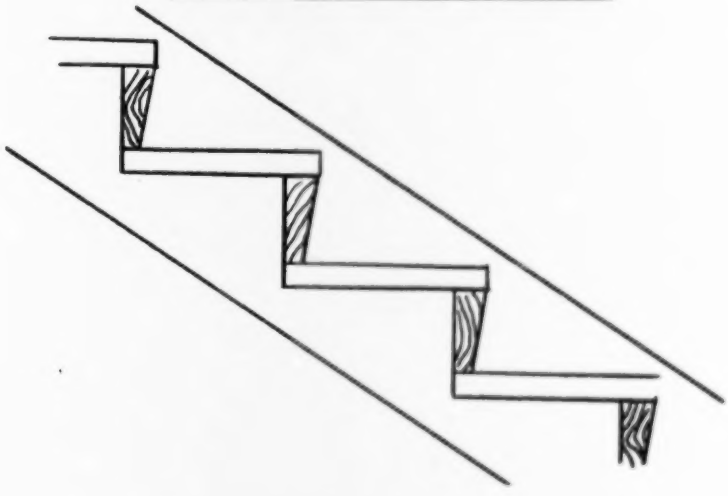


STAIRS I

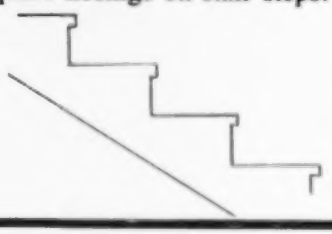
Problem:
No risers on stairs.



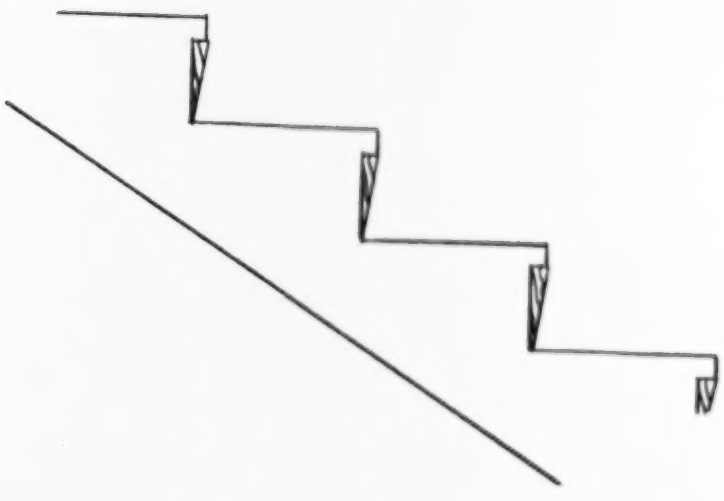
Solution:
Add risers.



Problem:
Square nosings on stair steps.



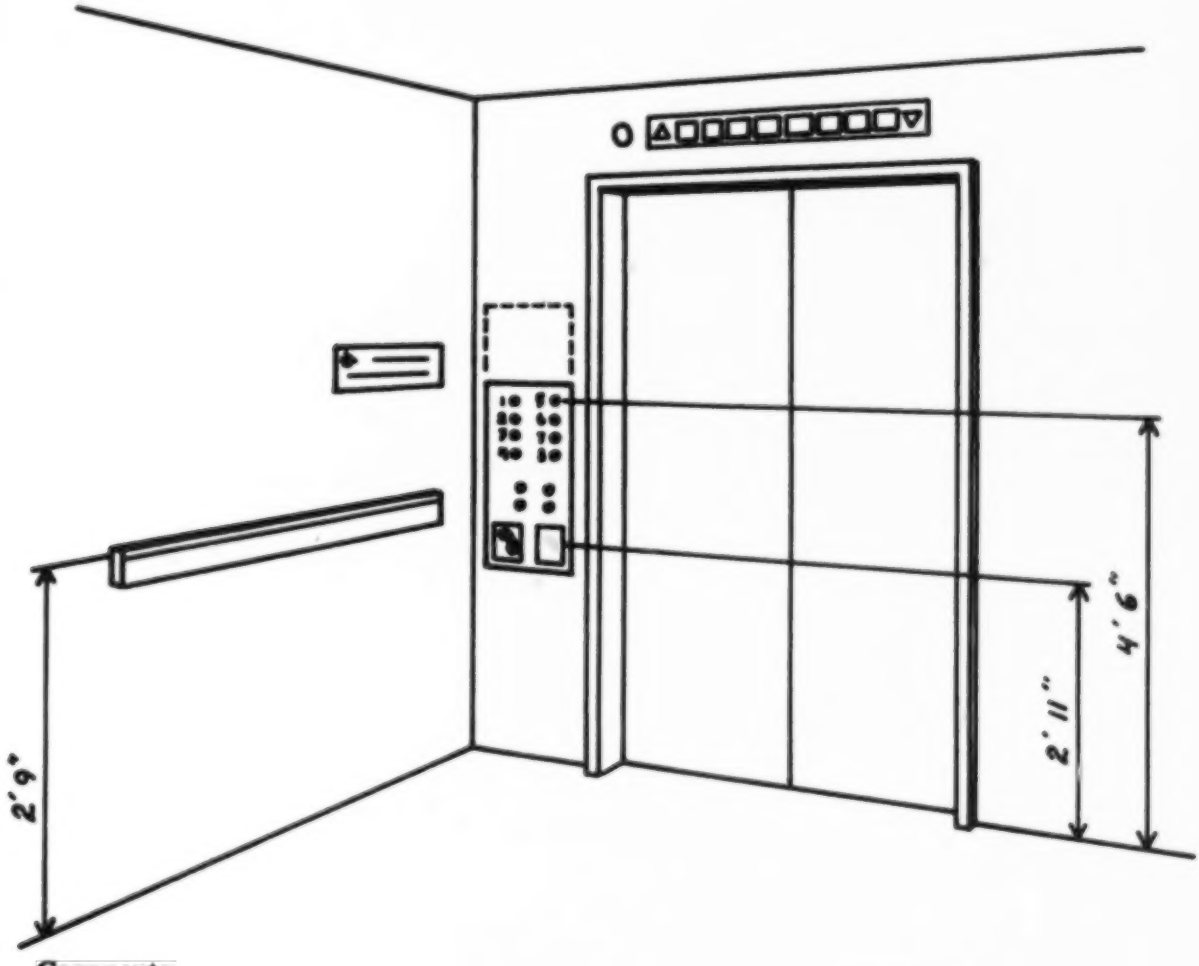
Solution:
Fill riser with wedge to match stairs.



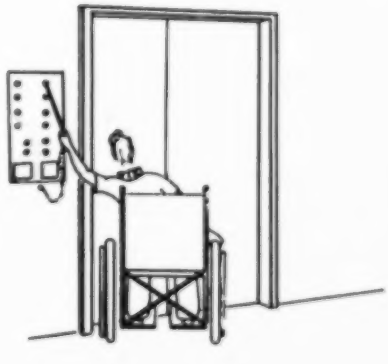
Elevators I

Problem:
Elevator floor selector buttons too high to reach from seated position; no tactile or Braille identification.

Solution:
Lower floor selector buttons, provide wand on chain, or add auxiliary panel.



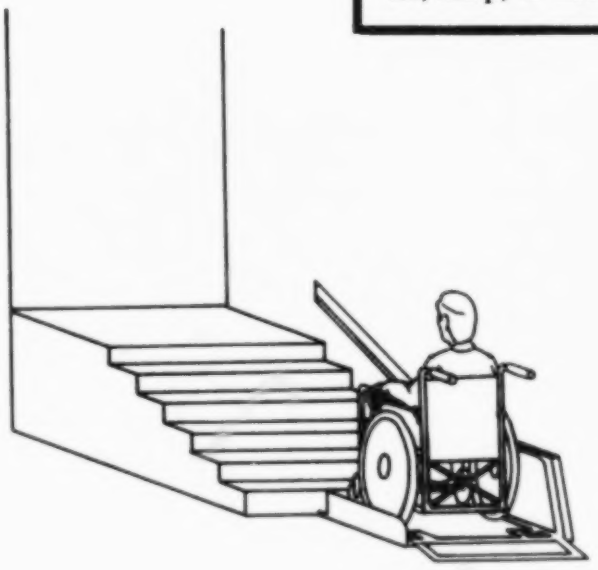
Comments:
1. All buttons should be marked with tactile letters and Braille.
2. Directional signal should be both audible and visual.



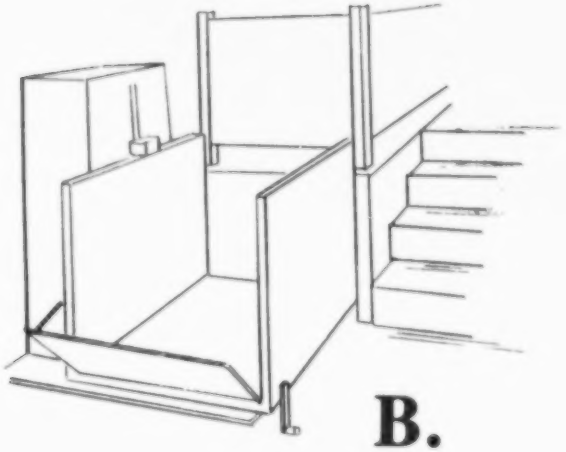
Problem:
Change in grade with no elevator, ramp, or alternate route.

Elevators II

Solution:
A. Inclined lift. Returns to lower level and becomes first step of stairway.
B. Vertical lift. Can be used inside or outside. Can be installed over portion of wide stairway, providing remaining stair width meets building codes. Lifts to height of 96 in.
C. Inclined lift for semi-ambulatory persons.



A.

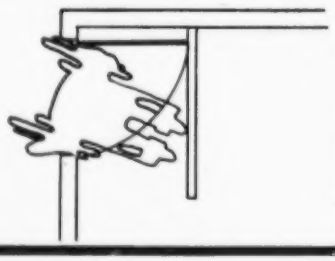


B.

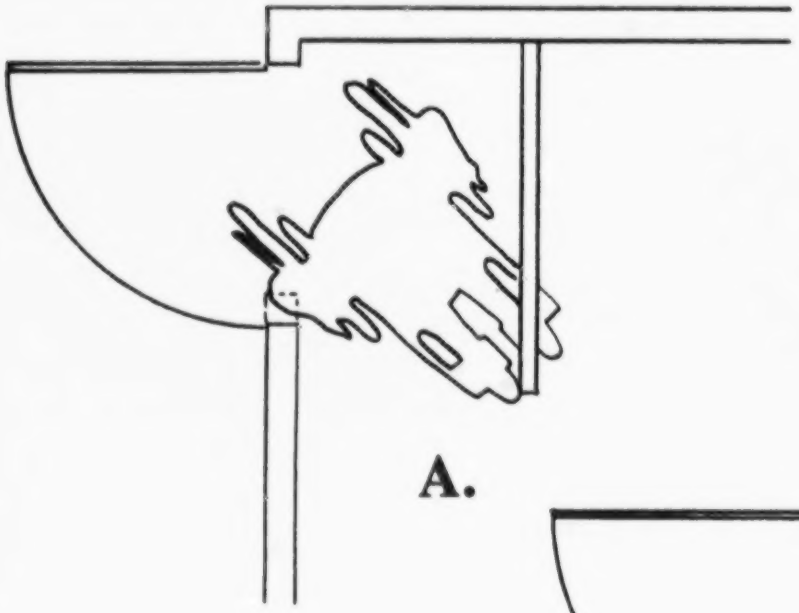
C.

Rest Room Renovations I

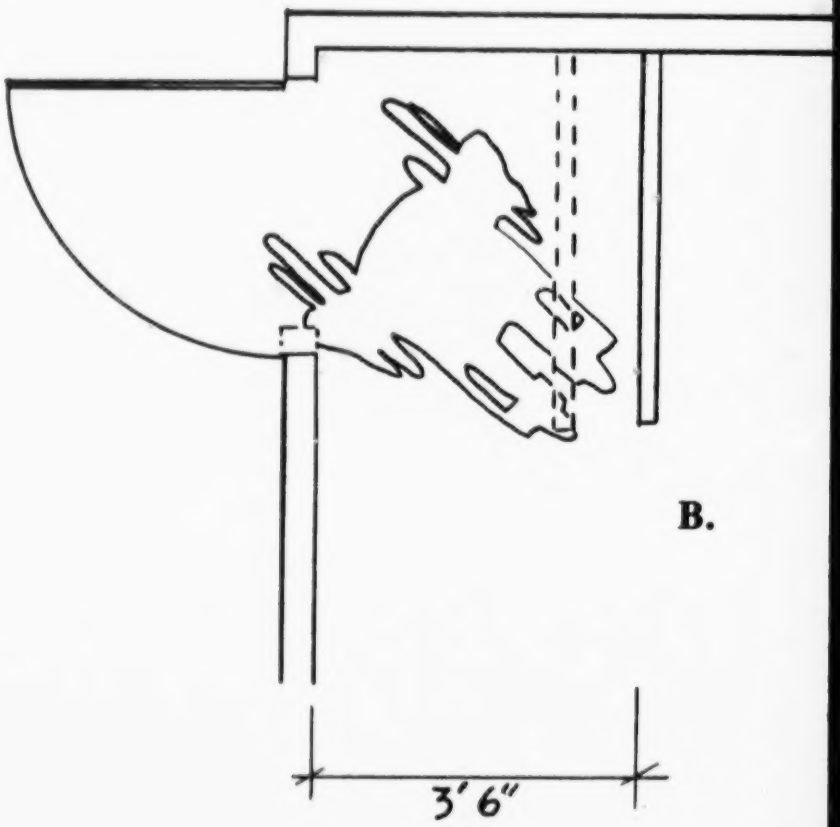
Problem:
Privacy wall too close to doorway or doorway too narrow.



Solution:
A. Cut away lower 1 ft of partition and/or widen doorway.
B. Move partition and/or widen doorway.



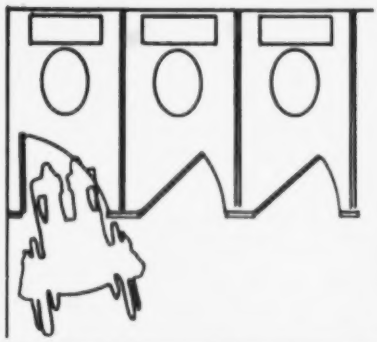
A.



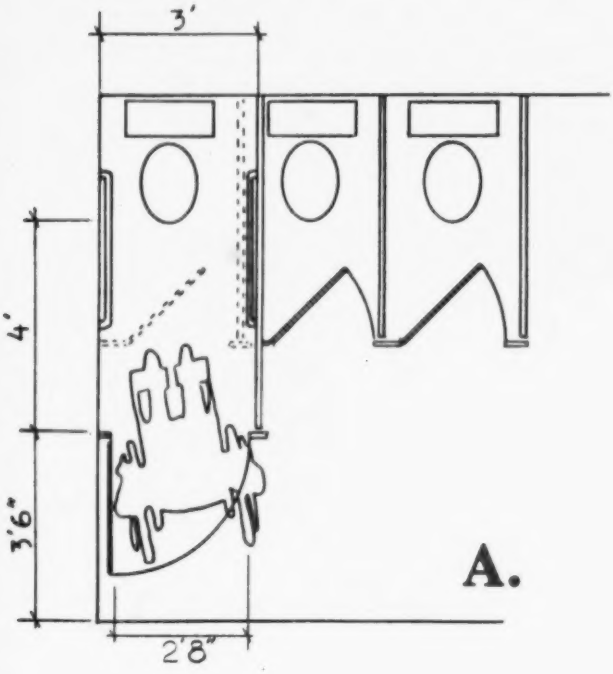
B.

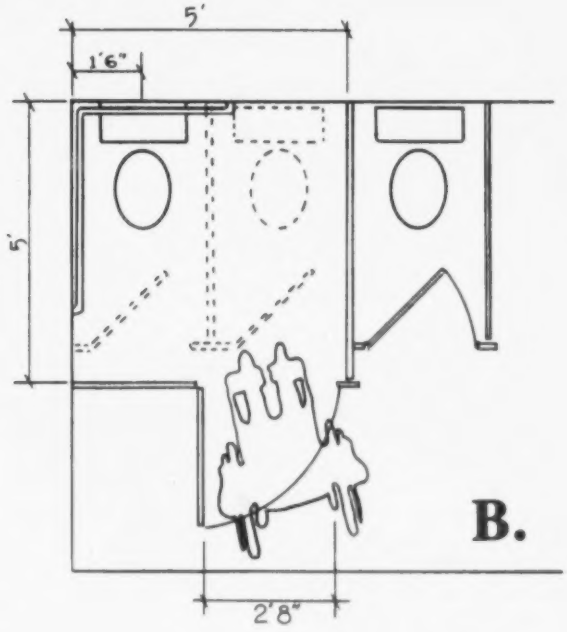
Comments:
1. Doorways should be at least 28 in wide.
2. Doorway must be wider, when partition is closer to door.
3. Offset door hinges may be used to gain additional clear opening space.

Problem:
Toilet stall not accessible.

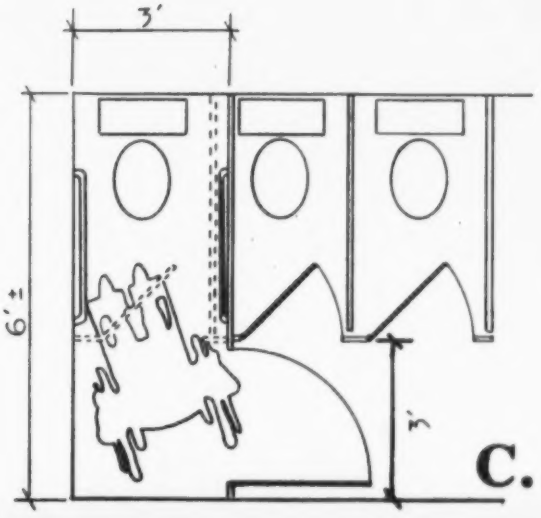


Solution:
A. Move partition, lengthen stall, widen doorway, add grab bars.
B. Remove partition and one water closet. Install wider door and filler panel, and add corner grab bars.
C. Move partition; include entire end of room as stall. Install wider door and add grab bars. This solution works best if room is too narrow to lengthen stall.





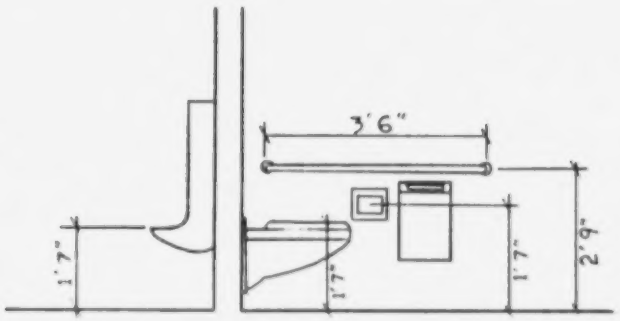
Comments:
1. For privacy, curtain may be used in lieu of stall door, if space does not permit enlargement of stall.
2. Grab bars should be installed along back and on at least one side of large stall.

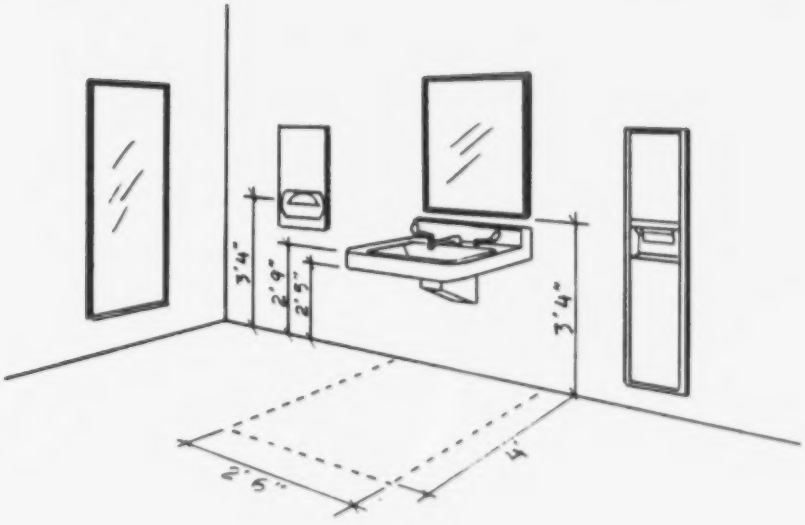


Rest Room Renovations III

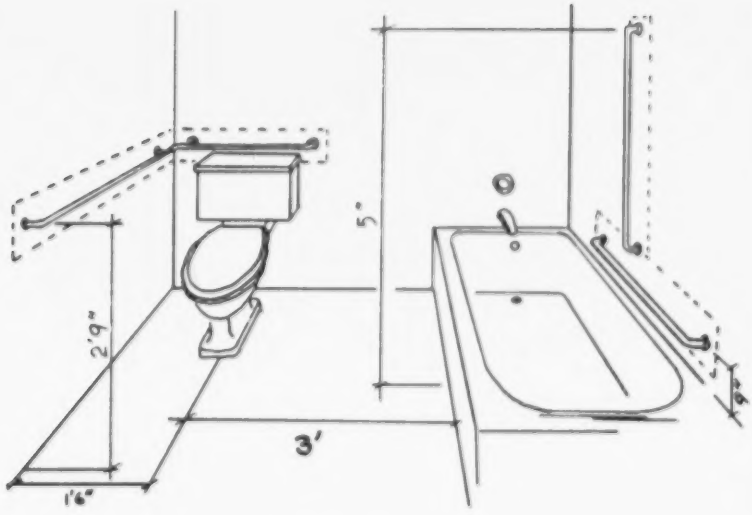
Problem:
Toilet facilities not accessible.

Solution:
A. Move fixtures to proper height.
B. Clear floor area around fixtures.
C. Place protective cover over hot water pipes under sink.
D. Replace faucet handles with paddle handles.





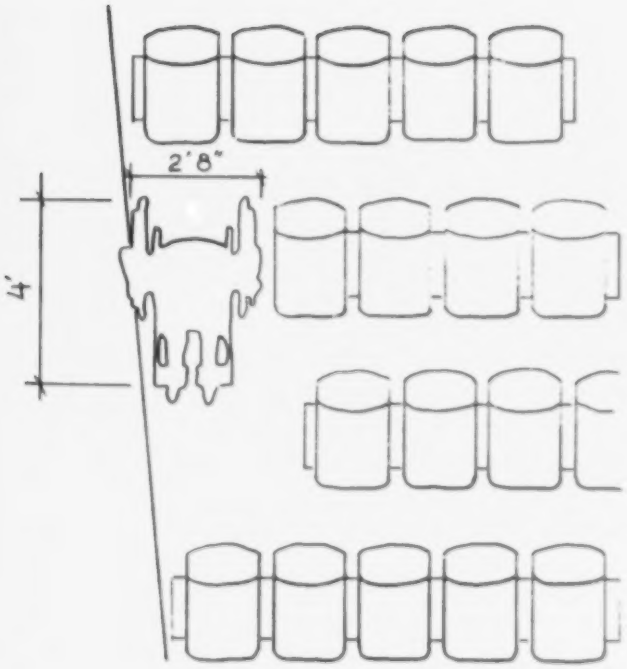
Comment:
1. Mirror may be tilted at top to allow seated persons to view themselves.
2. Grab bars mounted on 2 x 6s that are either inset behind wallboard or added to the outside of the wall.

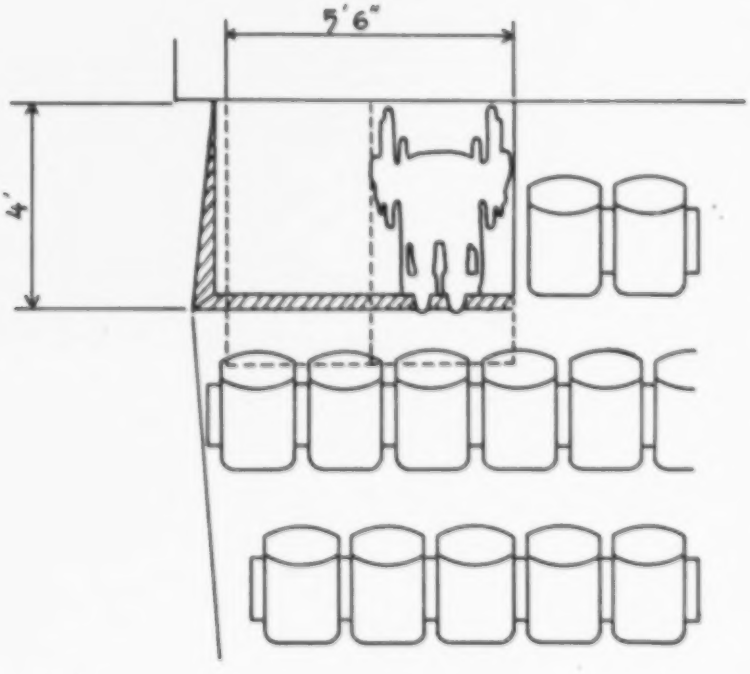


Problem:
No accessible seating in assembly areas.

Assembly Areas

Solution:
Remove seats from last row nearest concourse. Construct level platform, if slope is steeper than 1 ft in 12 ft.



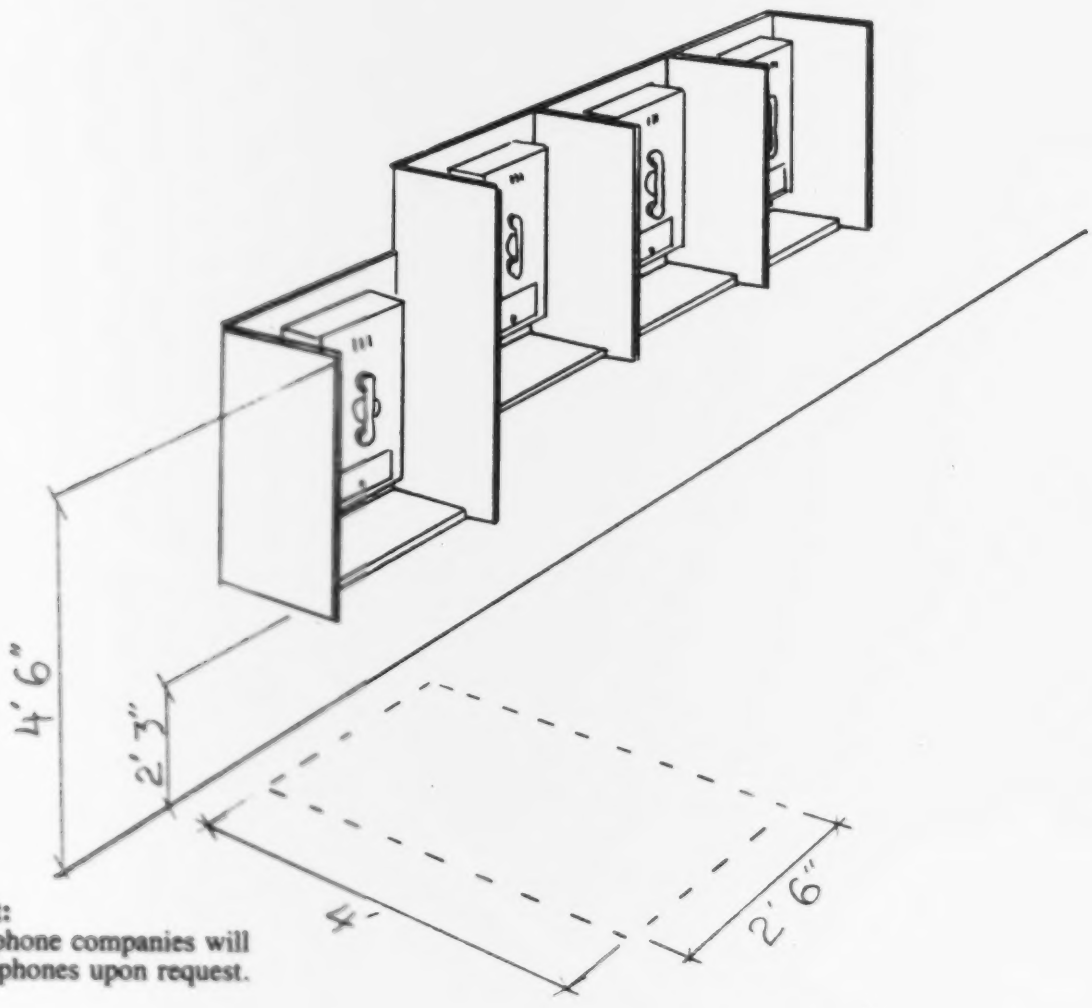


Comment:
1. Hand rail and wheel stops recommended.

Pay Telephones

Problem:
Telephone too high to reach from wheelchair.

Solution:
Lower one or more telephones.

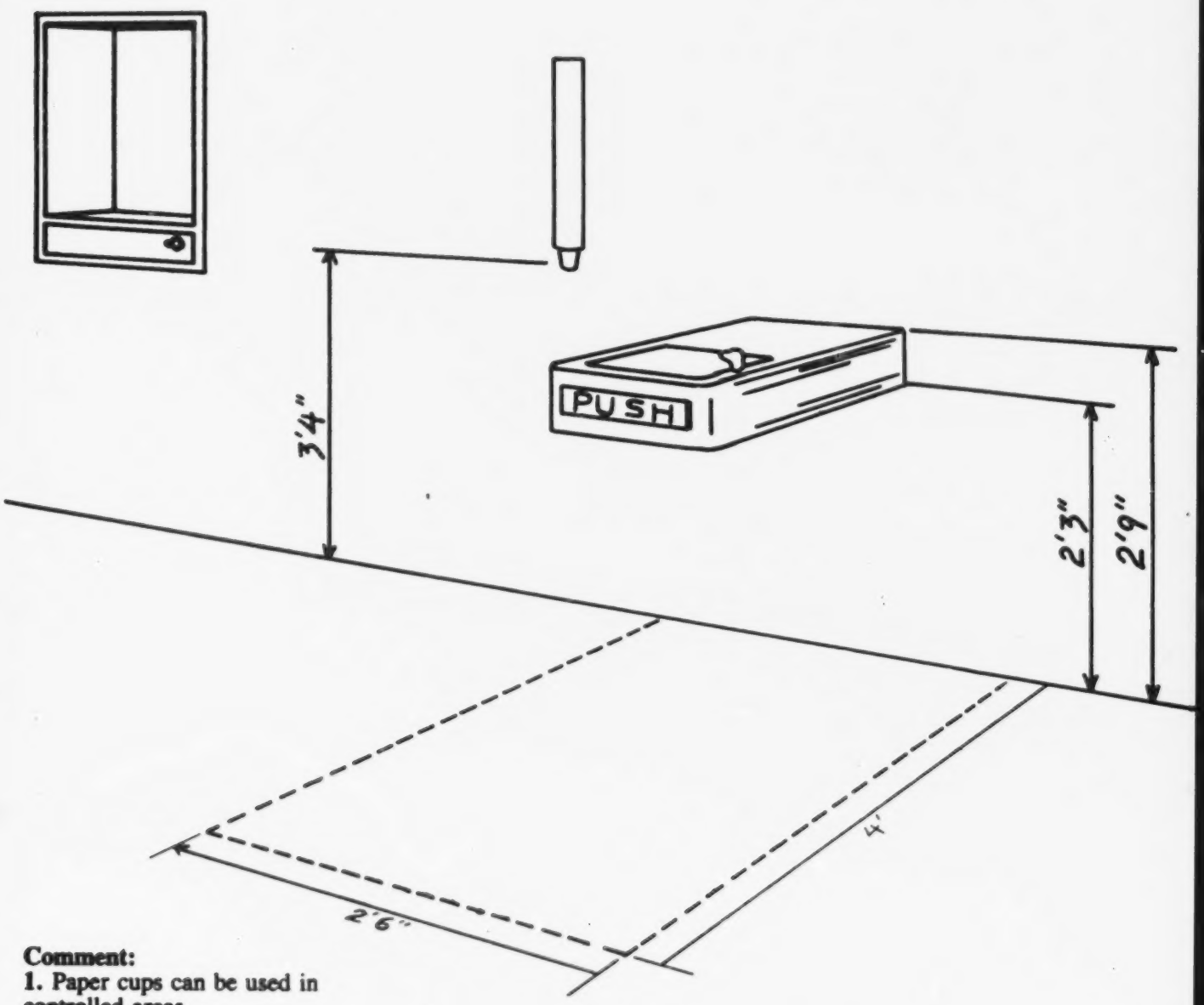


Comment:
Most telephone companies will lower telephones upon request.

Problem:
Water fountain too high to reach from wheelchair.

Water Fountains

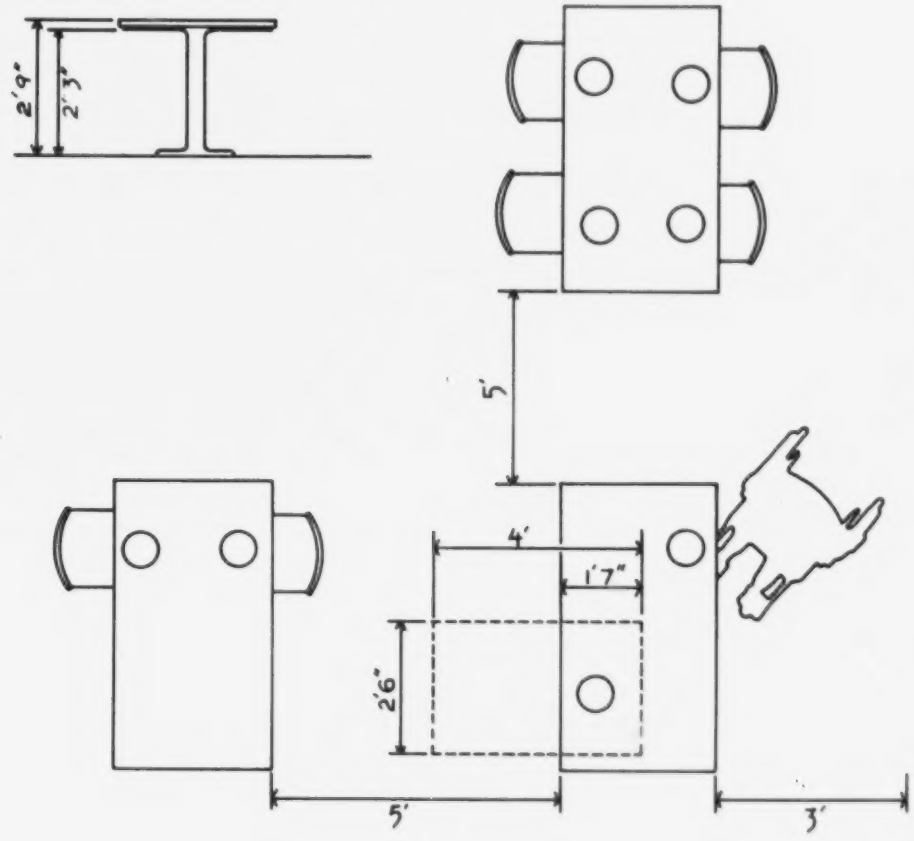
Solution:
Add auxiliary fountain.

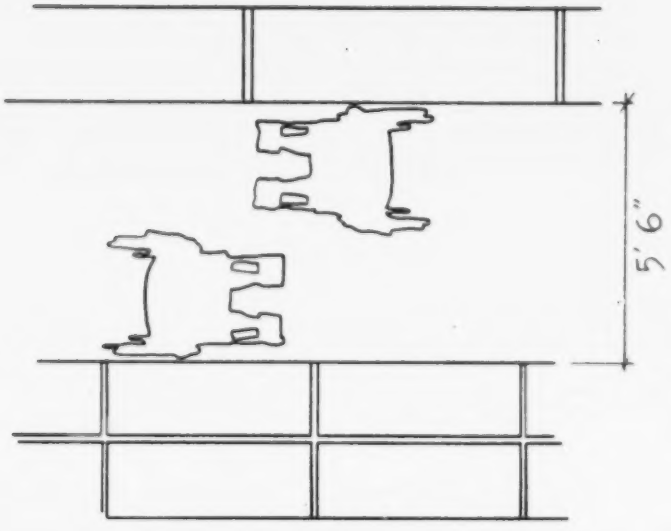


Comment:
1. Paper cups can be used in controlled areas.

Problem:
No manuevering room in cafeteria/library/classroom.

Solution:
Reposition tables and shelves.

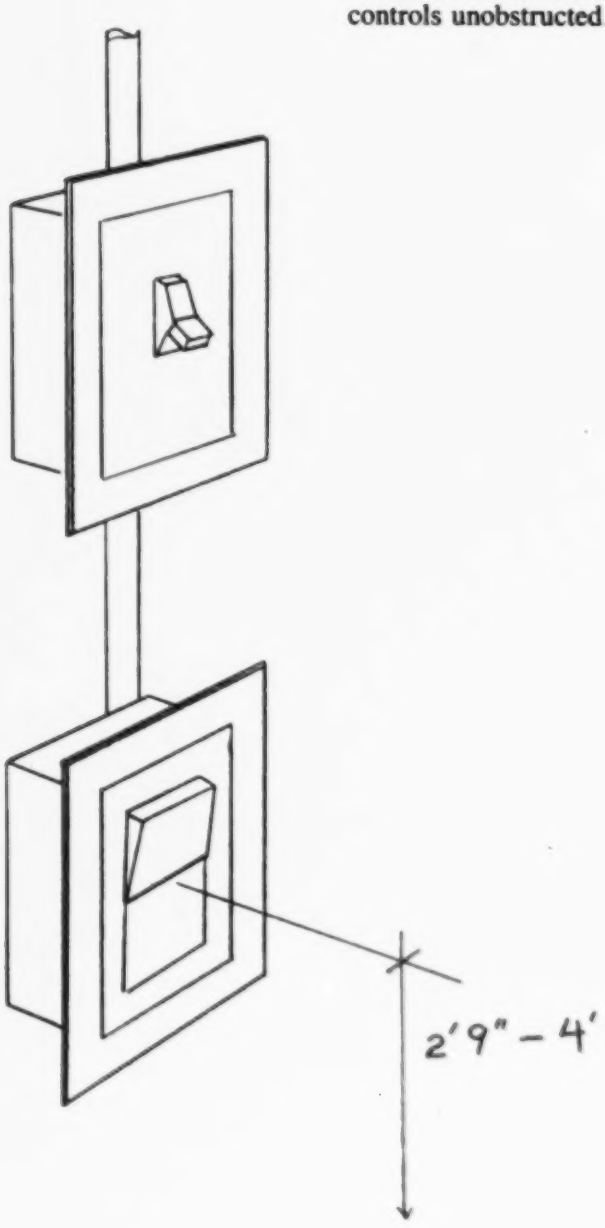




Controls

Problem:
Controls not accessible.

Solution:
Install controls between 33 and 48 inches above floor. Install electric outlets between 18 and 24 inches above floor. Keep controls unobstructed.



Comment:
1. Controls include switches, dials, and other controls for heat, lighting, air conditioning, ventilation, windows, fire alarms, telephones and intercoms, televisions, draperies, vending machines, fuse boxes, gas and water supply, elevators.
2. Auxiliary control switch may be added at lowered height, leaving existing control switch intact.
3. Rocker switches are easier to operate.